

ABSTRACT

An imaging system for detecting defects on a substrate. Sensor module ports are disposed on an imaging platform. Sensor modules are removably connected to the sensor module ports, and are adapted to sense swaths on the surface of the substrate. Each of the sensor modules includes a time domain integration sensor, optics, an analog controller, and a digital controller. The time domain integration sensor optically senses the swath. The optics focus light from the swath on the time domain integration sensor. The analog controller receives signals from the time domain integration sensor and provides data signals. The digital controller receives the data signals, integrates the data signals into an image of the swath, and provides the image as digital signals to the sensor module port. A master controller receives the digital signals, composites them into a single image of a desired portion of the surface of the substrate, and detects defects within the image. A stage moves the substrate under the sensor modules under the control of the master controller, until the desired portion of the surface of the substrate has been imaged.

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